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ABSTRACT

This monograph contains a case study of a controversial curricular innovation in Malta: the introduction of a subject called Systems of Knowledge at the postsecondary education level. The first part of the case study provides a historical interpretation of how Systems of Knowledge came into existence. The second part of the case study presents a detailed review of the present curriculum and examines issues that have arisen. The last part of the case study presents a discussion about how to further develop the subject. The chapters are as follows: "Introduction," "The Introductory State: 1987-89," "The Original Curriculum," "First Reactions, Results, and Responses," "Continuing Difficulties," "Confronting the Challenges," "A New Curriculum," "The New Syllabus," "The Three Core Modules," "The Teachers' Guide," "The Projects," "Communication Skills," "Interdisciplinarity," "Challenges and Problems in Teaching Systems of Knowledge," "Student Participation in Curriculum Development," "Future Development: Suggestions and Proposals," and "Conclusions." (Contains 31 references.) (SM)

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SYSTEMS OF KNOWLEDGE:
A CASE STUDY OF CURRICULUM INNOVATION IN MALTA

Joseph Giordmaina

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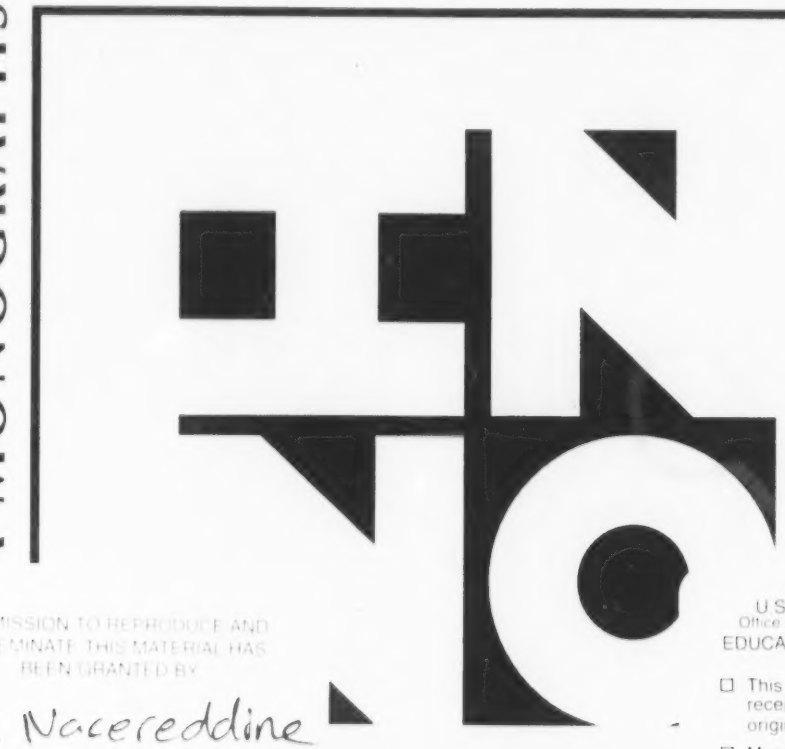

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Introduction

No other curricular innovation in the past two decades has, arguably, stirred such controversy within the Maltese education system as the introduction of the subject called Systems of Knowledge at the post-secondary level of education (16- to 18-year-olds). Its introduction led to the publication of an unprecedented number of letters and articles in local newspapers, and to the dissemination of leaflets opposing the subject. Questions were asked in Parliament, student protests were held, and Ministers, Parliamentary Secretaries and high officials from the Education Division had to meet students and teachers in order to justify the introduction of this 'new' subject.

In the first part of this case study a historical interpretation is given of how Systems of Knowledge came into existence. In the second part, a detailed review of the present curriculum is provided, and the issues that arise are set out. In the last part, my personal view is given about how the subject can be developed further. In order to provide as precise an account as possible, all articles on the subject published in local newspapers since 1987 have been examined. Local research in the area, mainly that conducted by Debono (1994), D'Amato (1993), Schembri and Spiteri (1998), and the Matriculation and Secondary Education Certificate (MATSEC) Examinations Board of the University of Malta in 1998, has also been investigated. In addition, information has been obtained from students and teachers. This approach has ensured that most of the 'arenas' where the specific curriculum development in question is taking place are explored.

Curriculum, then, is made of a variety of arenas and at a variety of levels. Central to this variety, however, is the distinction between the written curriculum and the curriculum as classroom activity. The dangers of only studying the written curriculum are manifest, for, as Rudolph has warned us: 'The best way to misread or misunderstand a curriculum is from a catalogue. It is a lifeless thing, so disembodied, so unconnected, sometimes intentionally misleading' (Goodson, 1997).

The introductory stage: 1987–89

Systems of Knowledge was introduced as a subject in a particular political situation in Malta, when the Demo-Christian Nationalist Party came to power after defeating the Labour Party in the 1987 elections. During its term of office, the Labour Government had introduced the *numerus clausus* for university entrance. In practice, this meant that only a specified number of students could take particular courses, the selection being made mainly on a points system: the greater the number of points, the greater the chances of admission. Points were awarded for the number of Advanced levels and Ordinary levels obtained in the General Certificate of Education (GCE) examinations, with a number of students still sitting for 'O' levels while taking their 'A' level courses in order to gain more points. These secondary and post-secondary external examinations are set and marked by examining boards in the United Kingdom, mainly the Oxford and London University boards. As the Nationalist Party had promised in its electoral campaign, it abolished, once in power, this system of regulating university entrance; and whoever had the required grades (generally three 'A' levels) could enrol for the course of his or her choice. Students could once again enrol for the BA and BSc courses, which had been discontinued by the previous Government.

In 1987 the then Minister of Education, Dr Ugo Mifsud Bonnici, announced new university entrance requirements, to be implemented as from 1989. These were 'three A-levels and another compulsory subject which would enable students to continue feeling part of the community'.[1] The latter subject was meant to prepare students for higher education—'how to think, how to look for truth and information, how to seek who is right'.[2] However, the subject was perceived by the Labour Party and most students as a disguised way of imposing a *numerus clausus*, restricting university entrance.[3] The Minister, denying such allegations in Parliament, stated that:

> The Systems of Knowledge course would replace the enrichment course from this year. Apart from serving as intellectual stimulus, the course would help the student to be mature, to be more flexible and adaptable for change in the world of work and encourage him to reflect in a mature manner on specific learning during his 'A'-Level course. Therefore there was a change, not an addition, and it could never be considered as an alternative to the *numerus clausus*.[4]

Furthermore, the Labour Party was afraid of how the subject could be manipulated in such a manner as to promote the political ideology of the party in power:[5]

Simply put, ideology refers to the production of meaning. It can be described as a way of viewing the world, a complex of ideas, various types of social practices, rituals and representations that we tend to accept as natural and as common sense. It is the result of the intersection of meaning and power in the social world. Customs, rituals, beliefs and values often produce within individuals distorted conceptions of their place in the sociocultural order and thereby serve to reconcile them to that place and to disguise the inequitable relations of power and privilege; this is sometimes referred to as 'ideology hegemony'. (McLaren, 1989, p. 176)

The original curriculum

Systems of Knowledge was mainly the brainchild of three individuals: Dr Ugo Mifsud Bonnici, Minister of Education; Dr Paul Heywood, Head of the New Lyceum in Msida and Chairman of the Council of the University of Malta; and Rev. Prof. Peter Serracino Inglott, Rector of the University of Malta. It is worth reproducing here the aims of the 1989 curriculum in order to give a clearer idea of what the subject was all about at that time:

> It has long been felt that the 'A' Level programme of studies should be supplemented by a cultural course which would not only help break down departmental separatism in schools, born of a concentration of effort on narrow 'A' Level syllabuses, but also prompt students to reflect maturely on specific learning derived from their 'A' Level courses and help them relate it to other fields of knowledge within a broad social and cultural framework.
>
> Systems of Knowledge is aimed at lending depth and breadth to 'A' Level studies, at the same time making students more adaptable, flexible and broadly educated. It is an attempt to integrate thinking and doing in ways that enlarge rather than trivialise understanding, an effort to recreate the wholeness of the person. Systems of Knowledge militates against an unreflective and mechanistic approach to life. It also implies a firm belief in the transferability of intellectual skills, like the ability to analyse, to argue logically and persuasively, which are the basis of a successful career."

Guidelines were issued on how to achieve these general aims. The syllabus was divided into six areas of study, with a total workload intended to be half that of an 'A' level subject. The areas of study were:

Man and symbols: mainly an introduction to logical thinking where teachers were 'encouraged to foster creative thought by organizing practical sessions in which students try to solve problems together in order to learn, among other things, how the opinion of one speaker may yield truth when combined with that of another'.

Man and environment: mainly an exploration of the relationships between human beings and their physical/human environment. This area was also meant to 'make students aware of the relationship of central political concepts to political activity and structures'. It was hoped that through this unit students would be prompted to participate in the democratic life of their community.

Man and history: an area meant to 'encourage students to view the shaping of their nation's destiny down the ages against the background of the cultural forces that have acted and reacted upon one another in the Mediterranean'.

Set texts: a number of texts revolving around two themes, 'voyages' and 'the experience of being under judgement', the main goal being a better understanding of humans as social beings.[8]

Scientific methods and history of science: an area intended to 'broaden the mathematical/science sixth-form curriculum by helping students to stand back from their specialist activities and to learn something of how physical science has grown, to trace out the steps by which it has attained its present power and importance and to think seriously about the moral and philosophical issues raised by the sciences'.

Artistic aims and achievements: aimed at encouraging students to view works of art within a historical perspective and help them to perceive a 'coherent relationship between seeing and understanding, engendering an awareness of art as a major visible aspect of human endeavour. Also, this module helps the student to understand the role of the artist, the architect and the craftsman down the ages'.

Systems of Knowledge was assessed by two written examination papers at the end of the two-year course, and candidates were expected to show competence in each paper.

One of the main goals of Systems of Knowledge was to do away with years of compartmentalized learning. Within the Maltese educational system, from as early as primary-level education, students are taught 'subjects' and the relationship among the different 'systems' of knowledge is never emphasized (see, for example, Mifsud, 1991, p. 52–54). In Malta, most primary schools function similarly to secondary schools, with students and teachers following a rigid timetable, moving from one subject to the next according to the time of the day. This approach to learning is further reinforced at the secondary level of education. At the post-secondary level, students used to opt for either the science subjects (usually a combination of physics, chemistry, biology and mathematics) or the arts (mainly languages, sociology, philosophy, religion and commercial subjects). At one point the structure of the main post-secondary school also reinforced this idea: there were two schools, each with an individual Head of School within the same building, one for 'Arts' and one for 'Sciences'. Students usually belonged to one of the two schools, although it was possible to take subjects offered by both of them. Such early specialization did not fit within the liberal concept of education, where specialization should be encouraged at a much later stage, preferably at post-graduate level. Not only did Systems of Knowledge try to introduce this concept of interdisciplinarity, but also it tried to address the general complaint by university lecturers that students had no broad appreciation of culture.[9] 'Culture' is understood as 'the fabric of ideas, ideals, beliefs, tools, aesthetic objects, methods of thinking, customs and institutions into which each member of a society is

born' (Reynolds & Skilbeck, 1976, p. 5). Students had very narrow views about science, art, history and politics, and had no idea of how to combine these in order to give greater meaning to their lives and the world in which they lived.[10] The Board of Examiners' report (1989, p. 3) points out that:

> The examination-oriented teaching characterising the five years leading up to the Advanced Level examination apparently does not provide our students with the lifeskills and know-how necessary for coping with changing patterns of work, much less for contributing to change, in a post-industrial age. To help remedy these shortcomings Systems of Knowledge attempts to foster flexibility and adaptability in the student through an interdisciplinary approach to learning.

At the time of the subject's introduction, however, these aims were not made clear to the general public, and the resistance to it was extensive.

First reactions, results and responses

Systems of Knowledge was described as a 'bombastic' subject, as Systems of Bluff,[11] Systems of Pornography (this being a reference to *Monsignor Quixote* by Graham Greene and *The Arabian nights*, two of the set texts that had to be studied),[12] Systems of Frustration[13] and *Kanna* (a 'pain in the backside'). Students argued that because of this new subject they had no more time for sports activities and not enough time for extracurricular activities (such as attending Christian Community meetings). In a letter to the editor of *Il-Mument*,[14] Systems of Knowledge was described as nothing more than a more formal version of the 'Cultural Enrichment' course that had existed under the previous Administration. The main criticisms were that the subject was too vast, there were too many books to read and most of them were in English, the latter fact implying that Maltese (the national language) was not being given the attention it deserved. However, according to the Board of Examiners' report in June 1989, Systems of Knowledge was meant to provide as wide a spectrum of knowledge as possible:

> The syllabus of Systems of Knowledge is deliberately made to cover a wide area of knowledge in order to discourage this conventional cramming approach. The emphasis, it must be borne in mind all along, is on the acquisition and exercise of skills. What the examiners look out for is the candidates' ability to grasp and experiment with ideas and principles rather than their capacity for memorising facts (p. 1).

Nevertheless, within a few months, advertisements for private lessons in the 'subject' were appearing in the press, and students were being given copious notes to study. Some of the prescribed books were out of print and lessons were being given to large groups of about fifty to sixty students (normal classes had a maximum of twenty-five students).[15] Resistance in the form of absenteeism was considerable (about 20%).[16] It was claimed that Systems of Knowledge was a form of propaganda for the Nationalist Party.[17] Some alleged that students had to spend about M£80 (US$200) on books, an allegation denied by the Minister of Education in Parliament in January 1988.[18] The Young Christian Workers issued a statement against the imposition of Systems of Knowledge as a compulsory subject for university entrance: according to them, this affected those who wanted to enter the University from outside the Sixth Form system.[19] A forum was held on 10 December 1987.

In 1988, the need for support for both teachers and students of Systems of Knowledge was addressed. A pedagogy course was given for the teachers involved.[20] A series of twelve programmes called 'Univers', developed by the Media Education Centre of the Department of Education, was broadcast

beginning on 15 April 1988.[21] A four-hour, four-day-a-week evening course was organized by the University of Malta.[22]

In 1989, there was a high rate of failure in the half-yearly examinations (60% of students failed).[23] According to a survey by a group of independent students at the main government Sixth Form School, more than half the students (864 students) wanted to drop the subject. The main complaint was that it was too wide, and that the methodology used was more of a 'listen and write' type than one involving discussions.[24] This opposition to the subject culminated in a students' protest on 26 April 1989.[25] The main protest was against the dictation and copying of notes, untrained teachers, the cost of books, the increase in study time and greater restriction of university entrance.

Students at the time also argued that they 'did not agree that the teaching of culture should be imposed'.[26] Leaflets opposing Systems of Knowledge were distributed. Students asked the Minister of Education to hold a referendum to see whether the students wanted to study Systems of Knowledge, a request supported by a Labour MP in Parliament.[27] However, the subject was again defended in Parliament by the Minister at the next sitting of the House.[28]

As a result of these protests, tutorial sessions where introduced. Support for teachers increased, and a two-day seminar for them[29] was held in June 1989.[30]

The main criticism of Systems of Knowledge from the teachers' point of view was that students approached the subject with a set of notes that they merely reproduced, at times giving answers completely irrelevant to the examination questions. Students did not seem capable of dealing with the facts, and interdisciplinarity was not being achieved. They were 'parroting undigested information rather than learning how to learn on one's own'.[31] These remarks were endorsed by the Board of Examiners' report (June 1989):

> Far too many students seem to have approached the examination with a battery of notes which they were bent on reproducing even when their relevance to the questions asked was only marginal. In fact quite a few candidates gave completely irrelevant answers, compulsively regurgitating notes... Moreover, most candidates ignored the requirement of attempting interdisciplinarity in their answers to the examination questions. The production of well-integrated interdisciplinary material is central to Systems of Knowledge. (p. 1)

One suggestion (which was later actually adopted) was the introduction of project work, encouraging students to 'personalize' knowledge. The 1989 academic year ended with a failure rate of 13.6% in the final examination, with more protests from students and MPs, who argued that it was not fair that some students had obtained three 'A' levels and yet were denied admission to the University because of this 'subject'. The solution proposed by the Minister was that these students should be admitted to the University on a provisional basis, i.e. that their admission would be conditional upon their obtaining the required grade when they re-sat the Systems of Knowledge examination.

Continuing difficulties

At a seminar held on 30 November 1989, Professor C. Pule (from the Faculty of Engineering) addressed a group of Systems of Knowledge teachers and discussed with them the relationship between science and technology and how this could be developed through the Systems of Knowledge syllabus. The result was the introduction of the project called 'Technology and the Quality of Life', the rationale for which was explained to students in March 1990. It carried 30% of the total assessment for the course, while the two papers carried 35% each. (The university issued detailed notes for both candidates and teachers in 1992.) Two months later, in May 1990, a book entitled *Man and symbols: a handbook*[32] was published by a group of Systems of Knowledge teachers. It contains a section devoted to language (as a system, as communication, as behaviour, as knowledge and as a function in thought), an introduction to logic, a section on thinking as a mental and practical approach, as well as a section on humankind and learning.

In 1991, the idea of continuous assessment (every three months) was proposed at another seminar for teachers.[33] According to an article in *Il-Helsien*,[34] teachers were complaining that what was being submitted was not the students' work but that of others, and that the teachers did not have clear guidelines on what was expected of them. Some also complained that they were forced to teach Systems of Knowledge,[35] the reason possibly being that there was a lack of trained teachers of the subject.[36] According to Debono (1994), in the 1992–93 academic year, four years after the first final examination in Systems of Knowledge, 37.8% of first-year students and 52.8% of second-year students felt that teachers were not prepared for teaching the subject. Only 8.9% of second-year students felt that their teachers were well prepared for teaching it.

Debono further reports that in 1994:

> there was a severe lack of Systems of Knowledge teachers at the complex [New Lyceum Complex, Gian Frangisk Abela, Msida]. A good fraction of the first year classes were without a Systems of Knowledge teacher. Moreover, classes that had Systems of Knowledge had only a lesson per week. (p. 29)

Because of the lack of teachers, a substantial number of students were taking private lessons in the subject.[37] The Labour Party was suggesting (in 1991) that:

> Cultural education should not be limited to two years, but should be spread out in secondary and post-secondary education. Furthermore, instead of final examinations on

this subject, the party felt students should be assessed by their teachers through a system of modules or credits which would serve as qualifications for jobs or for higher courses in higher education.[8]

The Minister of Education, Dr Ugo Mifsud Bonnici, agreed to the idea that the teaching of Systems of Knowledge should start at an earlier age.[9] Wain (1991, p. 110) argues that:

> the aims of Systems of Knowledge cannot really be achieved unless they are achieved in the schools, unless Systems of Knowledge is incorporated into the school curriculum throughout, primary and secondary, unless it becomes an ingredient of the National Curriculum.

This idea, however, has not yet been translated into reality.

Confronting the challenges

Although the above gives a rather negative picture of the innovation, it is important to note that according to Debono's (1994) research on students' attitudes (in 1992), a high percentage of students enjoyed Systems of Knowledge and found it quite interesting. A total of 53.9% of first-year students and 42.2% of second-year students found it interesting, while 38.3% of first-year students and 44.4% of second-year students had mixed feelings about it. Only 7.8% of first-year students and 13.3% of the second-year student sample found the subject uninteresting. Also, only 15% of first-year students and 25.6% of second-year students were of the opinion that Systems of Knowledge was a waste of time. Debono (1994, p. 77) indicates that:

> It's the presentation of content (teacher's methodology) that needs to be improved, primarily to uphold the aims of Systems of Knowledge. Teachers can do very much in fostering attitudes in students. Concentrating on the sheer delivery of content is surely not the best solution to this problem. At present Systems of Knowledge is being taught as if it were a course of general knowledge. Students are left on their own when it comes to interdisciplinarity.

On the other hand, the Board of Examiners' report for the 1992 session points out that:

> Far too many candidates convey the impression that they expect to pass this examination with the least effort, almost completely disregarding the set syllabus and simply answering questions from their often limited background of general knowledge. Major weaknesses included poor English and poorer Maltese, badly planned essays and regurgitation of memorised lecture notes—something for which candidates are severely penalised especially when, more often than not, the notes are almost completely irrelevant to the question asked. Far too many essays dealt with only one aspect of the theme raised by the question. These failings, of course, were highlighted in the 1991 report and will not be gone over in detail again here. (p. 1)

For the 1994/95 academic year some minor changes were made, especially in the assessment mode. The five core areas (i.e. logic and communication, the natural and social environment, the history of the Mediterranean, scientific methods, and forms of art and expression) were assessed through essays, projects, practicals or class tests. The assessment was school-based, and carried a maximum of 30% of the total mark. The project on technology and the quality of life carried another 30% of the marks, and the school awarded these marks as well. The Examination Board carried out moderation and oral testing. Another 30% of the marks were allocated to a final formal examination

held by the MATSEC Board at the end of the two-year course. This examination consisted of two three-hour papers testing candidates on the whole programme.

In order to promote interdisciplinarity, four themes were identified: the sea, energy, work and leisure, and language. (In the 1995 syllabus the theme 'language' was replaced by 'good and evil'.) Specific texts were chosen to illustrate these themes.[40] Ten marks were awarded for the degree of interdisciplinarity in the paper. An earlier innovation in the 1993–94 academic year was the teaching of Systems of Knowledge in French for students studying the French language.[41]

A new curriculum

In 1994, Malta introduced a new indigenous examination system for students completing their Sixth Form (post-secondary) studies—the Matriculation Certificate examination. This examination was a move away from the United Kingdom-based General Certificate of Education Advanced Level examination (GCE 'A' level), which had traditionally been taken in Malta since the 1950s by Sixth Form students and others wising to enter university. This change was a decisive one to provide students with a broader range of knowledge, better preparing them for university and adult life. The new examination is closely based on the International Baccalaureate diploma programme. Whereas 'A' levels allow students to specialize in considerable depth in a limited number of subjects, the new system permits students to study a wider range of subjects at either of two levels.

To obtain the Matriculation Certificate, two passes are needed at Advanced Level and three at Intermediate Level, together with a pass in Systems of Knowledge. This qualification became the new entrance requirement for the University of Malta from 1997. The main aim is to have university students who are competent in a language, a human studies subject, a science subject, and a technology or applied arts subject. For this to be possible, subjects are grouped and students have to choose at least one subject from each area. Systems of Knowledge was identified as an intermediate subject.

The International Baccalaureate diploma programme is a two-year pre-university course. Students are required to select one subject from six subject groups, three at higher level (five lessons per week in each subject) and three at standard level (three lessons per week in each subject). The subject groups are Language A1, Language A2, Individuals and Societies (economics, geography, history and psychology), Mathematics, the Arts and Electives, and Experimental Sciences. Students must fulfil the core of the programme as well, which consists of an extended essay of about 4,000 words. The main goal is to offer students the opportunity to investigate a topic of special interest to themselves, and in the meantime to become acquainted with the independent research and writing skills expected at university level. In addition, students have to take part in CAS (Creativity, Action and Service), which focuses mostly on life outside school, and in TOK (Theory of Knowledge), to which two lessons per week are allocated over a period of two years.

The aim of the Theory of Knowledge course on which Systems of Knowledge is modelled is not for students to acquire new knowledge but to increase their understanding of what they have already learned and to help them reflect on it. The Theory of Knowledge course introduces students to the

question 'How sure can we be of what we know?'. Different kinds of knowledge, the source of our knowledge and the role of language and thought in knowledge are explored. Also, the course examines ways of knowing in different systems of knowledge, such as mathematics, human sciences, natural sciences, literature and history. The relationship between knowledge, truth and beliefs, and the basis for moral, political and aesthetic judgements, are discussed. The overall purpose of the Theory of Knowledge course is to stimulate critical reflection on knowledge and experience gained within and beyond the school. Assessment includes an essay of about 1,500 words (40% of the marks), class writing (10%), keeping a journal (30%), and participation in talks, tutorials and seminars (20%). Students' work is assessed at the level of content, clarity and critical thinking abilities.

The new syllabus

In its introductory phase, Systems of Knowledge was meant to be the core of the new syllabus, the equivalent of Theory of Knowledge in the International Baccalaureate programme. Within this interpretation, it can be argued that Systems of Knowledge was the initial step towards the whole reform of university entrance requirements, and that as early as 1987 the scheme was already in place. The first step was the introduction of Systems of Knowledge, and then gradually the new intake regulations were established.

It was in October 1995, at a seminar for teachers organized by the Faculty of Education, the MATSEC Board and the Ministry of Education, that the reformed Systems of Knowledge syllabus was discussed in detail. The emphasis was no longer on interdisciplinarity but on the promotion of values among students.[42] The 1998 syllabus describes Systems of Knowledge as an interdisciplinary course aimed at:

— promoting an awareness of values;
— affording opportunities for going beyond the traditional limits of particular disciplines and gaining an insight into different systems of knowledge;
— developing candidates' ability to view ideas, skills and situations from a wider standpoint than that of a single discipline;
— fostering a greater flexibility in adapting to changing patterns of work and life in a post-industrial age.

The course focuses on:

1. A number of values: life, community feeling, knowledge, religion, work and play, aesthetic experience, democracy, science and technology. These values are reflected throughout Mediterranean civilization. Particular values seem to be predominant in specific periods;
2. The political, socio-economic, ethical and cultural environment in which these values developed in different periods of Mediterranean history;
3. The products of humankind throughout history, whether literary, aesthetic or technological;
4. The development of critical and creative thinking across the Systems of Knowledge curriculum;
5. The development of communicative skills in both Maltese and English.

The Systems of Knowledge course is divided into three modules, each focusing on a particular period of history: Antiquity and Early Middle Ages, the Middle Ages and Renaissance Period, and the Modern and Contemporary World.

The three core modules

In the module 'Antiquity and Early Middle Ages' the focus is on the values of 'life', 'religion' and 'democracy', although other values relating to aesthetics, science and technology are examined as well. Importance is attached to humankind's relationship with itself and with the Absolute. In the second module the emphasis is on the relationship between humankind and the cultural environment. The values mostly discussed are 'aesthetic' and 'community feeling' values. In the module 'the Modern and Contemporary World' the predominant values are 'scientific and technological' as well as 'work and play'. Here the focus is on humanity's relationship with itself and with the physical environment. All values are discussed within a particular political, socio-economic, ethical and cultural environment.

The term 'values' in this curriculum is used in the widest sense possible, going beyond the traditional understanding of moral values. The main problem within any values education programme, however, is always that of whose values are chosen, and why those particular values and not others. It can be argued that the list of values in this curriculum covers the moral/religious dimension, the aesthetic dimension, the civic, democratic and national dimension, as well as the personal and social dimension. The emphasis is not on the knowledge and understanding of those values, but on developing students' ability to make value judgements as well as to mature in their attitudes towards such values. And although the values are discussed within the context of the periods when they seem to have been more predominant, teachers continuously encourage students through a specific pedagogy to reflect upon these values as they affect their personal lives. Bowers (1984, p. 80-81), as quoted in Pinar et al. (1995, p. 276), points out that:

> The curriculum, whether it deals with the nature of work, time, metaphorical thinking, poverty, or ways of knowing, should be judged, in part, on the basis of whether it helps the student understand how the content area relates to the broader, overarching belief system of the culture and how that influences the existential questions faced in the course of everyday life. The question of whether the curriculum assists students in identifying the more important features of the cultural territory can also be approached in terms of whether the curriculum enables the student to deal with the paramount political themes and issues... If the curriculum is designed to reinforce the taken-for-granted beliefs that represent historically outmoded ways of responding to today's problems, the curriculum will serve to undermine the student's growth in communication competence.

The teachers' guide

In a guide specifically written for this syllabus (Giordmaina, 1995) it is suggested that different pedagogical styles should be used in teaching Systems of Knowledge. Although the lecturing style is predominantly used at post-secondary level (where a class has an average of about sixty students), the editor advocates the use of small group seminars (of not more than twenty students). The main aim of the seminars is to transform the classroom from a group of 'individuals' following a lecture into a community of inquiry, examining and reflecting on its values and beliefs. The term 'community' is usually 'perceived as constituted by a number of individuals having something in common—a common language, a common conceptual framework—and building something in common: a nation, a polis, an institution' (Lingis, 1994, p. ix). A 'community of inquiry' is identified as a group of people who are willing to deliberate co-operatively in a self-reflective and critical manner about an issue of concern to all of them.

This term as used in education is taken from the Philosophy for Children movement (Splitter & Sharp, 1995; Lipman, 1993, chap. 6). The way in which the guide is presented indicates that it is influenced by the Philosophy for Children curricula, especially those developed by the Institute for Advancement of Philosophy for Children (IAPC). The teacher's role in the seminars is more that of a facilitator than a disseminator of knowledge, encouraging and guiding dialogue where necessary. The guide recommends that, eventually, the students facilitate the discussions themselves (Lipman, Sharp & Oscanyan, 1980; Burbules, 1993).

For each value under discussion there is a 'Context' section which gives an idea of the historical and cultural context of the time; a 'Leading Ideas' section where a set of ideas are listed, which students are encouraged to think about; and a 'Text', generally taken from a classic, or written by the contributors themselves. It is within this text that the value is contextualized and discussed. Thus, for example, in discussing 'values and the environment' (Giordmaina & Scerri, 1996) students are given the context in which the relationship between humans and their environment is discussed. The following quotation should give an idea of how that section is organized:

> The text provided presents us with the two major views concerning the relationship between humans and their environment. There are people who see the incredible human ability to adapt as a sign of their independence from their surroundings and hence cherish an anthropocentric view of the environment...in which the environment is there to be exploited. Others still view humans as an integral part of the ecosystem and rather than interpreting human adaptability as a clear passport for exploitation, they

view it as a call for responsibility in their role of stewards of their environment. (Giordmaina & Scerri, 1996, p. 76)

Students are then given a set of 'Leading Ideas' designed to help them focus on the main issues, which in this case are as follows:

- Different people interpret the value of the land differently.
- What are the features that characterize a civilization?
- The intricate interrelatedness of creatures (including humans) with each other and with their environment.
- Wrong management of the environment tends to backfire on humans—whether they were responsible for this mismanagement or whether they were innocent bystanders.

The text identified for this section is taken from the Walt Disney film *Pocahontas*, and highlights the conflict between the concept of 'quality of life' of the indigenous population of the New World and that of the settlers. It is meant to act as a point of departure for the discussion of the identified value or values.

Through the examination of experiences (both personal and those of the community), an assessment of knowledge and ideas, an evaluation of a number of arguments and the development of certain attitudes (for example, the desire to reason and to challenge) Systems of Knowledge aims to further develop the critical and creative abilities of post-secondary students (Dewey, 1910; Kim, 1994; Boostrom, 1994). Development of their critical abilities is mainly encouraged through the seminars, while creativity is mainly fostered through the projects.

The projects

Students taking Systems of Knowledge have to produce three projects, two in the first year of their studies and another in the second year. The main idea of the projects is to encourage students to create something, i.e. to make something rather than merely know that something is the case. The principal goal is to follow de Bono's (1992) analogy of the carpenter, where the student is expected to go through the following steps:

- Cutting—separating the pieces one needs from the rest, involving operations like extracting, analysis, focus, attention, etc.
- Sticking—putting things together, involving thinking operations like connections, linkages, synthesis, grouping, design, etc.
- Shaping—setting out to achieve a certain shape and comparing what one has at the moment with what one wants. This involves judging, comparing, checking, design, etc. (p. 65)

For the projects, students can work collaboratively, thus promoting the idea of working as a group and as a community. The Literary Project is part of the first module. It carries 15% of the total final mark and is prepared under the guidance of, and corrected by, the class teacher. Its main goal is to encourage students to produce a literary work themselves and improve their reasoning through the process of writing (Frank, 1990; Moore, 1993). Students are encouraged to keep a journal in which they write down their reactions to the content of the lesson: in this way, they personalize the knowledge acquired. Or else they can focus on a particular value, looking back at their lives and reflecting on them in the light of their 'new' experiences. Such methods encourage reflective thinking and writing. For Graham (1991, p. 11):

> The student's self might be considered an object of inquiry or experiment, hence turning the writing of autobiography and autobiographical discourses into a way of thinking, a conceptual instrument of cognition. In this sense the view of knowledge implied in the effort to write the self is pragmatic in character, in that knowledge, like the self, comes to be seen as provisional, changing and socially constructed.

The other project produced during the first year is the Aesthetics Project. Here the main objective is for students to conceive and produce a work that has aesthetic value. They are free to produce plays, music, art, poetry, photography—anything they consider to be creative, artistic and aesthetically pleasing. Students first have to obtain the approval of their class teacher, under whose guidance the project is developed. The project is awarded 15% of the final

mark by the class teacher. A number of schools have organized exhibitions and concerts for the students' productions. Through such a project students have the opportunity to develop different forms of their intelligence, such as musical thinking, the use of the body to solve problems and to make things, an understanding of other individuals, as well as an understanding of themselves (Gardner, 1984, 1993).

The third project that students have to produce is the Technology Project. This is done throughout their last year at school, under the supervision of the class teacher, and accounts for 20% of the final total mark. The objectives of this project are to achieve an understanding of the nature of technology and its requirement not only for scientific knowledge but also certain skills (e.g. design skills, evaluation of solutions).[41] Students are expected to give an account of the problem tackled, how it was solved, the constraints involved, the ideas generated and discussed, conclusions reached for a possible solution, a design of the solution, its actual construction, testing and evaluation of the solution, and possible modifications. Students can work on this project in teams of five.

Schembri and Spiteri (1998) have researched the critical and creative thinking component in the 1997 Systems of Knowledge syllabus. With regard to the literary projects, they concluded that:

- Many students did not know exactly what was expected from them.
- For most of the students, this was the first time they had to do an analytic written project.
- Most of the students failed to see any relationship between the topics discussed during the semester in which they had to produce their work and which they had to analyse, and their experience.
- Many students failed to produce their best because of limited knowledge of the subject, especially those who did not have English, Sciences and Philosophy as an advanced or as an ordinary level.
- Some students did not have a good command of English and thus, at times, their arguments were not clear. (p. 81)

Schembri and Spiteri also found that:

...in the Aesthetic project a good number of students simply reproduced a model or a work of art, but were creative in the materials used. For most students this was their first experience in actually making something of this kind. Most of the technology projects had a high creative element, but the main problem, as with all take-home assignments, is whether the work was theirs. According to the students the technology projects are a good idea, for:

- It helps one think.
  'They are a good idea as they help us to be creative and think.'

- One has fun doing them.
  'Yes, because they make you realise the importance of practising things and [you] have fun doing them.'
- They make you responsible and also make you realise your capabilities.
  'The project has broadened my technological qualities and has made me more organised in my thoughts.'
  'Yes, it brings out talents in students.'
- Through them you learn how to do something on your own.
  'Yes, because by means of this project we learn to do something by ourselves. Something made to work by our own hands.'
  'Yes, they are [a good idea], because you think on your own, do experiments, collect information to do them and make all efforts to do them. For me it is a training which helps you a lot.' (p. 134)

Not all students, however, think that having projects as part of Systems of Knowledge is a good idea. From the same research it seems that the projects:

- distract one's concentration from other subjects.
  'No, they really distract you from other subjects which are surely more important than systems of knowledge.'
- It does not help them for their everyday life.
  'No, we will never need these projects in everyday life.'
- The projects do not help them in their future; thus they are a waste of time.
  'No, because they are not going to help us in the future.'
- It shows what the students can get away with since not all the students do their own projects (p. 145).

The MATSEC Examinations Board[11] has also conducted research into the Systems of Knowledge projects. Table 1 gives the students' point of view as to whether they find the projects enriching, fair, a waste of time or a substitute for written examinations.

While a number of students seem to value the knowledge they acquire through the projects and find them enriching as well as a good substitute for written examinations, quite a few are concerned about the fairness of the grades awarded, mainly because rumour has it that a number of students actually buy their projects or have others produce the work for them. This abuse is currently being reduced, especially since all projects now have to be completed under the supervision of the class teachers.

TABLE 1. How far do you agree with the following statements about the projects in Systems of Knowledge?

The projects are:		Strongly agree	Agree	Not sure	Disagree	Strongly disagree	No answer
(a) Enriching	First-year students	12%	35%	20%	15%	13%	5%
	Second-year students	11%	28%	20%	22%	18%	1%
(b) Fair for assessing knowledge and skills	First-year students	11%	35%	14%	17%	17%	6%
	Second-year students	11%	21%	13%	20%	34%	1%
(c) A waste of time	First-year students	19%	14%	17%	30%	14%	6%
	Second-year students	21%	16%	19%	27%	16%	1%
(d) A good substitute for written examinations	First-year students	33%	34%	14%	8%	9%	2%
	Second-year students	24%	26%	19%	14%	14%	3%

First-year students: 885; second-year students: 895.

Communication skills

Another aim of Systems of Knowledge is to develop students' communication skills. This is mainly done through modelling by the teachers when delivering their lectures, the articulation of the students' ideas through the seminars and the projecting of ideas using different media in the students' projects. The intention is that through Systems of Knowledge students should better understand 'texts' in the widest sense of the term, whether in print form (written texts, tables, diagrams, maps, art) or general situations which students have to learn to 'read'.

Students still have a number of set texts to study in the syllabus, but these have been reduced in number, and most are meant to illustrate examples of the values under discussion or to provide the necessary historical context.[3]

At the end of the two-year course students have to sit an examination based on their lectures and set texts. It is set by the MATSEC Paper Setters' Board and corrected by the MATSEC Board of Examiners. The final paper carries 50% of the total marks.

Interdisciplinarity

By interdisciplinarity is understood:

> the convergence approach in which each discipline methodologically complements and illuminates the other. A convergence problem is one whose solution—if one is possible—requires considerable information from a number of different but specialised fields, seeks relationships between the kinds of information, notes the intersections of relationships that apply to the problem under study, applies a method of analysis to a problem that cuts across several fields, and relates the solution to the values of the community and to the context within which the curriculum is being developed. (Unruh & Unruh, 1984, p. 107)

Interdisciplinarity is still one of the main goals of Systems of Knowledge, although it is not the core aim as it used to be in the early 1990s. This is mainly because of the new system in which students have to select subjects from the different 'forms of knowledge'. But this in itself does not mean that students adopt an interdisciplinary approach to knowledge, and they may still view knowledge as distinct and separate; it is for this reason that interdisciplinarity is important in Systems of Knowledge. If the concept of interdisciplinarity were abandoned, the programme that would be left would be very similar to the United Kingdom's 'A' level general studies programme. For example, in Swatridge (1995) there is a list of twenty-two topics that are in no way related: fields of knowledge are simply listed and explored independently of one another.[46] In Systems of Knowledge, Aristotle's identification of three classes of disciplines—the theoretical, the practical and the productive—are all investigated in an interdisciplinary approach (Gordon, 1981, p. 43).

Challenges and problems in teaching Systems of Knowledge

Interdisciplinarity is mainly promoted through the texts chosen, through the projects, where students have to draw from different fields of knowledge in order to produce a coherent whole, and also through the way in which Systems of Knowledge is taught. This is done differently in different schools. For example, in small schools with about fifty students there is usually one Systems of Knowledge teacher. This means that he or she has to cover all the modules and thus is in a better position to link the content. The main drawback here is that students are not being exposed to as many different perspectives as they would be if they had different teachers, as is usually the case in large schools.

In the latter case, rotation of modules among teachers is possible, with certain teachers responsible for particular areas. Teachers prefer this approach for the obvious reason that they have much less to prepare, repeating the same lectures with different classes. It can be argued that having a more focused area allows teachers to be better prepared and go into more depth within one module than if they had to prepare the whole three modules.

Furthermore, teachers tend to choose to teach the module in which they feel confident. Since teachers are not subject to any special requirement in order to teach Systems of Knowledge, apart from being qualified as teachers in a particular area, they tend to teach the area in which they specialize. Thus, for example, someone qualified in science tends to teach the third module, while someone with an arts degree tends to choose the first or the second module. There is, as yet, no specific course within the Faculty of Education that prepares teachers for the subject. Consequently, teachers tend to resist the idea of teaching areas about which they claim they have no knowledge. One way of encouraging teachers to adopt a more interdisciplinary approach is the use of peer teaching. Also, mechanisms can be created for teachers to meet regularly and share their practical experience and subject expertise with colleagues. Klein (1991, p. 132) points out that:

> Members of a professional group work together toward the advancement of their knowledge and the improvement of their practice... This work is carried forward in organizations such as hospitals and in learned and professional societies. Under the best of circumstances, when individual members of the profession encounter intellectual and practical problems, they consult systematically with their colleagues about how to ameliorate them.

Ideally, there should be specifically trained teachers for the subject. Neither the Faculty of Education nor the Education Division has ever held a diploma or certificate course in the teaching of Systems of Knowledge. Some argue that teaching at post-secondary level is very much considered to be the same as teaching at secondary level, the belief being that no special formal training is needed to teach students within that age bracket. In reality, however, this is not so, especially when teachers are faced with very large groups, have to facilitate discussions among adults (not school-age children), and in this case are dealing with a subject that is non-existent at the secondary level. For example, Schembri and Spiteri (1998, p. 124–25) found that, according to students, during the seminars:

> lecturers explained what they had talked about during the lectures. Another group of students stated that they had debates: 'we pick on one chapter and then are asked our points of view. Often we get two main groups of ideas and debate. The teacher encourages us to express our views.'
>
> Some students at Msida [the main post-secondary in Malta] wrote that they had to prepare notes or points at home on a particular issue and discuss these during the seminar. Others stated that the lecturer asks the students a question and the students have to answer, discuss and argue. Some students stated that teacher talk dominated the seminars and that the seminar is similar to a lecture except there are fewer students. Yet, there were other students who stated that groups of students had to research a subject and share what they have researched with the rest of the class, leaving some time for discussion. Another group of students stated that they were assigned a subject title and had to write an essay about it at home, then read it out aloud to the class. Sometimes, the students were asked to read a passage at home and discuss it in class.

Student participation in curriculum development

Aware of the importance of student participation in any curricular reform, Schembri and Spiteri (1998) asked students what changes they would like to see in the Systems of Knowledge programme. The following are some of their suggestions:

- The syllabus should be changed.
  'By changing completely the syllabus and substituting the topics with others which apply more to our lives.'
  'Less in the syllabus and avoid repeating topics already found in philosophy...'
- Lecturers have to be trained to give interesting lectures.
  'The lecturers have got to be trained to do so in the first place, by making lectures interesting, using videos and other technological equipment, with the books made more applicable to today's society.'
- The subject should be less vast and the number of topics should be decreased and topics should be more related to students' everyday life and problems.
  'Topics discussed are related to today's society, beliefs and characteristics, not OBSOLETE times from Plato.'
- The exam should be eliminated as it causes too much pressure, and thus no critical and creative thinking can take place.
  'Eliminate the pressure of examinations.'
- More discussion and seminars should take place, and thus more participation.
  'I think that there should be more seminars...'
  'These can be improved by creating discussions which make the students eager to participate rather than making the student feel bored and sleepy...'
  'One can improve the seminars and lectures by involving the students more, giving them time to reflect and answer individually, analysing their ideas.'
- Lectures should be in smaller groups and the students should choose the topic to be discussed.
  'Lectures—smaller groups but then less perspectives. Seminars—chairs in a circle because everyone feels involved. We ourselves present or lead discussion with teachers as "observers", commenting when needed.'
  'The students should choose what to discuss during the seminars. Thus they would feel more involved in seminars.'
- The number of texts should be reduced and also changed.
  'Other books, more recent ones with sense and meaning which have to do with our lives and not that past.'
  'In my opinion it would be better if the textbooks were to be removed as they make the lesson even more boring.'

- Many students also referred to the use of other materials such as videos.
- Students felt that they were not being treated like adults.
  'They can improve by letting the students express more their feelings and not treating us like small children.'
- Lectures should be more interesting.
  'By making lectures more interesting and taking students on outings to interesting places.' (p. 120–21)

According to research by the MATSEC Examinations Board[17] (1998), 62% of first-year students and 68% of second-year students agree that Systems of Knowledge broadens one's outlook and is culturally enriching. At the same time, about 56% of first-year students and 59% of second-year students believe that it causes more stress than other subjects. From this research it seems that, overall, Systems of Knowledge is appreciated by students and should remain in the curriculum, although there is clearly room for improvement in various aspects of the programme.

Future development: suggestions and proposals

DIALOGUE

Any future development in the Systems of Knowledge programme should involve more dialogue with those concerned. Systems of Knowledge should be officially recognized as a 'programme of studies' rather than a 'subject', which would leave it more open to change and innovation. The term 'subject' is a rigid term, although, obviously, 'subjects' evolve as well, but at a much slower pace. Dialogue must be emphasized for a number of reasons in the drawing up of new syllabi. One reason is that ideas develop within both the self and the community. Hence the concepts of 'community feeling', of participation and of sharing of ideas should be embedded in the process as well (Applebee, 1996). All teachers, and possibly students, should be involved in any major changes in the subject.

The model used when the 1997 syllabus was drawn up is as follows. The MATSEC Board set up a working group[38] and the main ideas were worked on and presented to teachers at various seminars. Workshops were organized and ideas discussed. The students' points of view were considered through informal interviews and through Debono's dissertation (1994). The result of these meetings was the new syllabus and guides for the programme. The guides are mainly written by Systems of Knowledge teachers. This proved very useful in pitching the texts to the students' abilities and needs.

When Systems of Knowledge was introduced in 1987, dialogue with the teachers and students was purposely avoided. The then Minister of Education, Dr Ugo Mifsud Bonnici, argued that he did not conduct a dialogue with teachers and students, so that there would be no opposition to the subject.[39] This paternalistic attitude is totally unacceptable, and should be avoided in all curricular innovations. The result of such an approach was highlighted in the first part of this case study. Wain (1991, p. 27) points out that:

> in a democracy it is unacceptable that power over the curriculum should be exclusive to the state or to the Minister acting in its name, or that the Minister should hold him/herself above accountability to the body politic with regard to the formulation of its aims and ideals and their manner of implementation.

Also, to be successful in reaching its goals, Systems of Knowledge has to be introduced at a much earlier age, preferably at secondary level. Too much is

being attempted in a 'subject' which is supposed to be at Intermediate Level, the result of which is undue stress and resentment on the part of students. Values education, critical and creative thinking, and the presentation of knowledge as unified rather than as fragmented and unrelated concepts should form part of any curriculum.

TRAINING

As stated earlier, Systems of Knowledge teachers have to be trained specifically for this programme. A shift in teaching approaches through a sharing and discussion of ideas rather than the mere dissemination of information is necessary. This sharing and discussion with large groups requires certain abilities and skills. Team teaching should be introduced. Also, the use of multimedia can animate the teaching of Systems of Knowledge, for example through the utilization of relevant slides and CD-ROMs, as well through the use of Internet resources for distance learning, especially by students not following the programme within the school, but on their own. All this needs adequate financing as well as a back-up team of teaching assistants to develop such material. Through a television programme entitled 'Systems of Knowledge',[30] produced and transmitted in 1997, teachers were able to model participation and discussion with small groups of students. Systems of Knowledge teachers were involved in writing the scripts. Initiatives such as phone-in programmes on radio should be encouraged.

The problem of private lessons has to be tackled as well, although it is difficult to say how. Private lessons are considered a problem, especially in this area, where most of the aims, as developed through specific pedagogy and through the 'community of inquiry', may be lost. Usually in private lessons information is simply provided in the form of printed notes, which are studied by heart and reproduced under examination conditions. The research by the MATSEC Examinations Board (1998) shows that private lessons are still popular with students in this area, with one in four second-year students attending on a regular basis. Table 2 is taken from that research.

ORGANIZATION OF PROJECT WORK

The way in which the projects are organized also needs revision. At the present time, they reinforce the idea of segregation rather than integration of knowledge. For example, it is apparent from examining aesthetic and technological projects that there is a considerable overlap between the two. Both can

TABLE 2. Involvement in private lessons among first- and second-year students

		Yes	No	No answer
Did you take private lessons in Systems of Knowledge?	First-year students	1.6%	94.2%	4.2%
	Second-year students	24.9%	74.7%	0.3%
If your answer is 'Yes', it is because			Agree	Disagree
(a) There are not enough lessons/tutorials at school.	First-year students		2.4%	1.1%
	Second-year students		14.2%	9.0%
(b) It is not taught well at school/college.	First-year students		2.5%	1.0%
	Second-year students		19.0%	4.3%
(c) My friends take private lessons.	First-year students		1.1%	2.0%
	Second-year students		4.7%	17.0%
(d) I get individual attention.	First-year students		1.1%	2.1%
	Second-year students		7.0%	15.0%
(e) My parents insist that I need extra lessons.	First-year students		1.1%	2.0%
	Second-year students		2.0%	20.0%

be integrated, with an aesthetic project having a technological component as well. This project could be worked on at the end of the first year and during the first half of the second year of the programme. In the first year, students should be encouraged to develop reflective reading and writing skills. The main reason for this is that Systems of Knowledge is mainly taken by students who intend to follow a university course, and such writing at university level is very much encouraged, especially in the humanities. It is desirable that students should connect what they do in class with what happens outside school, and with their personal history, realizing how knowledge and world views, especially their own, have been constructed and can be constructed differently. Also, a study identifying the skills necessary for a successful university student should be conducted. Such skills include the location and selection of knowledge, the expression of one's thoughts through different means, the ability to analyse arguments, to be critical of what one is exposed to, and to be creative in proposing alternatives. These skills can be developed through the Systems of Knowledge programme. A love of learning, the need to find one's significance and a love of 'truth' can also be fostered within this programme. These represent more of an individualistic kind of skills and attitudes. There should also be a focus on the community, and students in this programme should be further encouraged to work in groups and to create as a team.

COMMUNITY WORK

Some kind of community work should also be introduced. In Malta all educational services are free, including those at post-secondary and university level. Students can 'pay back' the community by involving themselves in community work. Such an involvement will greatly help them to grow and experience that which is often relegated to the margins of society. One model which the Syllabus Panel can look at is the CAS (Creativity, Action and Service) part of the International Baccalaureate diploma programme. Within that programme, students are expected to participate in creative and artistic activities, sports and community service activities in and out of school. CAS encourages students to develop their talents, their awareness as regards the community and the possibility of working co-operatively with others.

VALUES EDUCATION

One other change that can be implemented is in the way in which values are currently being taught, i.e. within a particular period in time. Possibly, things should be the other way round: the value should be reviewed and discussed through history. Thus, for example, if the value of life or the value of democracy is being discussed, it is possible to trace this value through history and, for example, to show how such values changed and developed, and how subjective they tend to be. Such an approach will give students the opportunity to read texts from different periods, exploring the evolution of ideas and knowledge.

THE TEXTS

The texts through which values are explored also need to be revised. For one thing, they have to be less gender-biased. The present selection of texts suggests that it was only 'man' (white European man) who produced good ideas and created knowledge. Only a few women are given their due importance in the current syllabus.

> It is probably the feminist critique which has had the most devastating effect on modernist knowledge, not least because modernity has often dissociated from itself half of humanity. The feminist critique reveals that history, culture, science and technology are, fallaciously, seen to be the products of men and so presented within the curricula of schools and universities. The activities of men were (and still are) privileged by many academics and are confused by them with the activities of the whole of humanity. (Coulby & Jones, 1995, p. 33)

Conclusion

If one agrees that we are living in a world similar to that described by Pinar et al. (1995), then a more diverse Systems of Knowledge curriculum in which there is cross-cultural inquiry and a curriculum in which the issues raised by post-modern philosophies are explored are called for.

> The conditions and attitudes which are characterised as post-modern may be summarised as follows: 1) television and electronic media and the image industry (including advertising as well as film) solidified their dominance in representing the world and result in an increasing move from print to image culture; 2) there occurred an explosion in information and a concomitant rise of information technologies; 3) global or multinational capitalism moved unopposed to a preeminent position in the world economy; 4) nature appears dead in the complete humanisation of the world; 5) the state and the economy grow more fully integrated; 6) terms such as 'ironical,' 'cynical,' 'fragmented,' even 'schizophrenic' come to describe the psychosocial tone of the period; 7) the introduction of new technologies supports post-structural and deconstructed notions of the subject, time, and history; and 8) concepts of high culture and low culture conflate and hierarchies of aesthetic taste are debunked. (Pinar et al., p. 469)

Topics/ideas which could possibly be explored through a Systems of Knowledge curriculum are as follows: universal truths and metanarratives, language, power, the de-centred subject, discourse and its relation to reality, 'texts', interpretation, deconstruction and meaning, different voices and perspectives (specifically of those on the margins of society), the ways we represent ourselves and our world, our identity and 'situatedness' (gender, ethnicity), multiple 'realities' and 'simulations', the questioning of rationality and the problems of modernity, the celebration of difference and diversity, and the perception of history as non-linear, cyclical, culturally inspired and constructed. The list is endless.

From within this post-modern perspective one would like to see more students allowed access to the programme. Believing in the 'subject's' validity, one cannot but wish that other students, in addition to those whose path will lead them to university, may be exposed to Systems of Knowledge.

Notes

1. *Times*, 26 August 1987, p. 17. See also *Government Gazette*, 23 August 1987.
2. *Il-Mument*, 18 October 1987, p. 24.
3. *Il-Helsien*, 23 October 1987, p. 5; see also *Times*, 16 August 1989, p. 32.
4. *Times*, 12 November 1987, p. 7. At a meeting with teachers on 27 May 1987 the Minister told them: 'For me, man has to appreciate those disciplines which are basic to values, as well as scientific disciplines. Both have utilitarian value, apart from being formative in their nature. Both illiterate scientists as well as philosophers ignorant of the sciences are monsters that I would not like to see in modern Malta' (my translation); as reported in *Ministeru tal-Edukazzjoni: Fatti u Figuri* [Ministry of Education: facts and figures], 12 May – 13 November 1987.
5. See article by M.Vella in *It-Torca*, 1 November 1987, p. 7.
6. *Hyphen*, vol. 5, no. 4, 1987, p. 182.
7. The following information is reproduced from *Hyphen*, vol. 5, no. 4, 1987, p. 181–203.
8. Students were given a list of compulsory texts, one of recommended readings and another for further reading. The list of compulsory texts (for the section entitled 'Man on a Journey') is as follows: Homer, *The Odyssey*; *Tales from the thousand and one nights* (translated by N.J. Dawood); Miguel de Cervantes, *Don Quixote*; Graham Greene, *Monsignor Quixote* (for the section entitled 'Man under Judgement'); Plato, *The last days of Socrates*; Paolo Milano (ed.), *The portable Dante*; F.M. Dostoevsky, *Crime and punishment*; Georges Bernanos, *Monsieur Ouine* (Systems of Knowledge syllabus for 1989, p. 4).
9. K. Wain, Is Systems of Knowledge, in *Il-Poplu* (Msida, Malta), no. 13, June 1989, p. 36.
10. The Minister of Education, Dr Ugo Mifsud Bonnici, often stressed that Systems of Knowledge was not a 'subject', but more a 'method' (see *Il-Gens*, 21 September 1990, p. 1).
11. *Il-Helsien*, 23 October 1987, p. 5.
12. *L'Orizzont*, 25 November 1987, p. 6; *Il-Helsien*, 3 November 1987, p. 9.
13. *Weekend Chronicle*, 28 November 1987, p. 8.
14. *Il-Mument*, 15 November 1987, p. 6.
15. The 1990 examiners' report (p. 1) points out that 'Classes are mammoth-sized... Such a situation means "lecturing" or still worse, given the magnitude of some groups, outright speechifying, leaving absolutely no room for the "concept of *homo ludens*" and the athletic art to strengthen the sinews of understanding', as reported in D'Amato (1993, p. 27).
16. *L'Orizzont*, 2 December 1987, p. 5.

17. *L'Orizzont*, 14 October 1987, p. 11.
18. The actual cost according to the Minister was M£8.50 (US$22), *Times*, 19 January 1988, p. 3.
19. *Times*, 28 December 1987, p. 5.
20. *Il-Helsien*, 22 April 1988, p. 2.
21. *Times*, 12 May 1988, p. 23.
22. *Sunday Times*, 7 August 1988, p. 9.
23. *Sunday Chronicle*, 2 April 1989, p. 15.
24. *Times*, 20 April 1989, p. 17.
25. *L'Orizzont*, 27 April 1989, p. 1.
26. *Times*, 1 May 1989, p. 12.
27. *In-Nazzjon Taghna*, Parliamentary Report, 18 May 1989, p. 7.
28. *Times*, 8 June 1989, p. 12.
29. For a review of what was discussed in the seminars between 1991 and 1993 see D'Amato (1993, p. 85–8).
30. *In-Nazzjon Taghna*, 21 June 1989, p. 24.
31. Article by Dr Paul Heywood, *Sunday Times*, 9 July 1989, p. 25.
32. C. Briffa; M. Zammit; G. Gauci, *Man and symbols : a handbook*. Zabbar, Malta, Guttenberg Press, 1990.
33. *In-Nazzjon Taghna*, 28 February 1991, p. 7.
34. *Il-Helsien*, 19 April 1991, p. 3.
35. *L'Orizzont*, 21 October 1991, p. 3.
36. This shortage was still being felt in November 1994 (see *Malta Independent*, 6 November 1994, p. 1).
37. *L'Orizzont*, 13 November 1991, p. 7; 4 November 1992, p. 8. See also the advertisement by Politeatru: Foundation for the Arts, *Sunday Times*, 31 October 1993, p. 23. The issue of private lessons in the subject is also referred to in letters to the editor (*In-Nazzjon Taghna*, 21 June 1994, p. 23; 26 September 1994, p. 13).
38. *Times*, 15 October 1991, p. 40.
39. *In-Nazzjon Taghna*, 12 March 1992, p. 24.
40. The sea: Hilaire Belloc's *The cruise of the 'Nona'* or Joseph Conrad's *The nigger of the Narcissus*; energy: Homer's *Odyssey*; work and leisure: Hermann Hesse's *Siddhartha*; language: Lewis Carroll's *Through the looking glass*. For 'good and evil' the two texts chosen were William Golding's *Lord of the flies* and John Finnis' *Moral absolutes*.
41. P. Heywood, Systems of Knowledge: six years on, *Sunday Times*, 19 September 1993, p. 27.
42. *Times*, 7 October 1995, p. 5.
43. For a detailed description of the criteria used in assessing this project, see the syllabus published by the MATSEC Board, University of Malta. The syllabus is referred to as the Matriculation Certificate Examination.

Intermediate Level: IM32 Systems of Knowledge—Syllabus for 1998. See also Giordmaina and Scerri (1996, p. 10–15, 110–21).

44. The report, based on research carried out in 1997, has not yet been published.
45. For the module 'Antiquity and Early Middle Ages' students are expected to read E. Bradford, *Mediterranean: portrait of a sea* (books 1 and 2), London, Hodder & Stoughton, 1987; and Plato's *Apology* (which has also been translated into Maltese; students are encouraged to read the Maltese translation). For the second module—'Middle Ages and Renaissance Period'—students read Bradford (book 3); and G. Vasari, *The lives of the artists*, Milton Keynes, UK, Open University Press (on Leonardo da Vinci, Michelangelo and Raphael). The readings for the module 'Modern and Contemporary World' are J.D Watson, *The double helix*, New York, New American Library, 1969; M. Pirsig, *Zen and the art of motorcycle maintenance*, London, Bantam, 1986; and L. Sciascia, *Council of Egypt*, London, Harvill Press, 1993 (the latter is also available in Maltese).
46. The topics are as follows: architecture, curriculum, economics, energy, environment, Europe, government and politics, law, literature, media, medicine, music, painting, philosophy, psychology (cognitive), religion, science, society, sport and leisure, technology, universe, and world.
47. See note 44.
48. The first meeting of this working group was held on 25 November 1994.
49. In an interview with Debono (1994) the Minister states (p. 199): 'Most of them [teachers] were not prepared for the idea of Systems of Knowledge, especially in 1987, and accepted the subject because it was suddenly introduced; there wasn't time to oppose it. And this was my idea, that I quicken the introduction so that the idea was accepted, and not let opposition build up. In fact it was accepted' (translation of the Maltese original).
50. The programme was produced by Ms Moyra Borg Cardona and myself, and directed by Mr Louis Debono.

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